AN ROINN OIDEACHAIS
(Department of Education.)

INTERMEDIATE CERTIFICATE EXAMINATION, 1945.

MATHEMATICS (Arithmetic).

MONDAY, 18*th JUNE.*—Morning, 10 to 12 noon.

The total number of questions answered should not exceed *six*.

Mathematical Tables may be obtained from the Superintendent.

1. It costs £43 7s. 6d. per mile to tar a road. How much, to the nearest penny, will it cost to tar a road 7 miles 2 furlongs 160 yards long ?

[30 marks.]

2. Express 17s. 1½d.

   (i) as a decimal of £1 ;

   (ii) as a percentage of 25 shillings.

[30 marks.]

3. Of the employees in a certain factory, $\frac{5}{13}$ of the total are mechanics and $\frac{8}{17}$ are labourers. The remainder, 64 in number, are clerks. How many mechanics are employed ?

[30 marks.]

4. The radius of a circle is 10 inches long : find its area in square centimetres, correct to the nearest square centimetre.
[See Tables, Page 33.]

[30 marks.]

5. A shopkeeper marks his goods so as to make a profit of 45% on the cost price. During a sale he allows a discount of 10% off the marked price ; what profit per cent. does this leave him ? What did he pay for an article which he sold for 65s. 3d. nett during the sale ?

[30 marks.]

6. In finding the amount, to the nearest penny, of £853 at compound interest for 3 years at 3% per annum, a boy calculates the answer from the formula £853 $(1 \cdot 03)^3$ by means of 4-figure tables of logarithms. How much will his answer be in error ?

[35 marks.]

7. Find, correct to three significant figures, the value of

$$\sqrt{\left\{ \frac{x^3}{x^2+x+1} \right\}},$$

when $x = 67\cdot89$. [35 marks.]

8. Divide £630 among 4 persons A, B, C, D so that A's share is to B's as $7:6$, B's is to C's as $5:4$, and C's is to D's as $3:2$.

[35 marks.]

9. Find in yards, to the nearest yard, the length of a pipe which can be made out of a cubic foot of lead, if the external diameter is $1\frac{1}{4}$ inches and the internal diameter 1 inch.

Find also, to the nearest ounce, the weight of one yard of the pipe.

[See Tables, page 33.]

[35 marks.]